



News Release

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Bees Abuzz for U of G Pollen Substitute

Honeybees around the world are feasting on a natural pollen substitute created by researchers at the University of Guelph. It's believed to be the first-ever pollen substitute scientifically formulated to meet bees' nutritional needs.

Environmental biologists Abdolreza Saffari and Prof. Peter Kevan designed the product to help keep bee colonies healthy and strong when natural food sources are scarce — a growing concern around the world amid environmental changes. The potential markets in North America and around the world are significant and could amount to millions of dollars annually, said Kevan.

Studies published in the *American Bee Journal* show that the product has the same nutritional value as pollen and is consumed by bees at the same rate. Colonies fed the substitute also produced twice as many bees and doubled honey production. In addition, field and research trials showed that, when given a choice, bees consumed U of G's pollen substitute eight and 17 times more often than other products.

"In some ways, it works even better than natural pollen," said Saffari, who came up with the general idea for the product while studying animal nutrition in India and Iran. He noticed that although animal supplements are designed to meet specific dietary needs, the same effort had not been made for bees. "Honeybee nutrition is more than a century behind animal nutrition in general; it's a very new science," he said.

Saffari spent several years doing preliminary research on a formula for a pollen substitute before coming to Guelph three years ago for his M.Sc. and to work with Kevan and animal nutrition professor Jim Atkinson on scientifically designing and refining the recipe. The trio

paid unprecedented attention to bees' dietary needs and to the nutritional value of pollen.

Already, the substitute pollen is being used to supplement the diets of bees in Spain, Brazil and Iran, as well as in parts of the United States and Canada. Now the researchers have agreed to supply Australia's Department of Primary Industries and Fisheries with the product for field trials. That country's honeybee industry is dealing with changes associated with some natural resources being redesignated, said Peter Beattie, the Queensland Government's premier and minister for trade. He hopes the substitute will be a nutritional resource and help decrease the industry's dependence on traditional pollen supplies.

The Aussie situation is not unique, Kevan said. "There is an increasing global scarcity of bees and insects and of natural pollen supplies. Changes in agricultural styles, chemicals and pesticides, and parasitic diseases have taken a tremendous toll." It's affecting bee populations, honey producers and farmers, who depend on pollinators for crop production, said Kevan, who heads Guelph's International Network for Expertise in Sustainable Pollination.

So Saffari set out to develop an effective diet, testing more than 225 feed ingredients over the course of a decade. He has partnered with Grain Processes Enterprises Ltd., in Scarborough to manufacture and distribute the product under the registered trade name "Feedbee." The research has also been supported by the Ontario Beekeepers' Association and the National Research Council's Industrial Research Advancement Program.

Before now, most commercial pollen substitutes were unpalatable or nutritionally poor, made up mostly of sugar and soya flour or yeast. The U of G diet, fed to bee colonies in patty form, includes a proprietary combination of ingredients that build up protein in bees' bodies at the same rate as natural pollen. Better yet, "the bees really like it," Kevan said.

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